

ABSTRACT OF THE DISCLOSURE

A system for performing a medical treatment in blood vessels, composed of: a catheter having a longitudinal axis, a distal end, an outer lateral surface, a central guidance lumen extending along the longitudinal axis and opening at the distal end, an annular bypass flow lumen surrounding, and isolated from, the guidance lumen, inlet and outlet openings extending from the lateral surface and communicating with the bypass flow lumen, and first and second balloon inflation lumens extending to the lateral surface at respective first and second locations that are spaced apart along the longitudinal axis between the inlet openings and the outlet openings; and first and second balloons secured to the lateral surface and each communicating with a respective one of the first and second inflation lumens, wherein the bypass flow lumen terminates distally at a location between the outlet openings and the distal end of the catheter.